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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,966	02/20/2002	Yasuaki Nakamura	520.41229X00	7046
24956 7590 01/12/2007 MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C. 1800 DIAGONAL ROAD SUITE 370 ALEXANDRIA, VA 22314			EXAMINER DALENCOURT, YVES	
			ART UNIT 2157	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/12/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/077,966

Applicant(s)

NAKAMURA ET AL.

Examiner

Yves Dalencourt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 is/are allowed.
- 6) ☐ Claim(s) 1-8, 12-14, 16, 18, and 20 - 23 is/are rejected.
- 7) ☒ Claim(s) 9-11, 17, 19 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This office action is responsive to Request for Continued Examination (RCE) filed on 10/19/2006.

#### ***Response to Amendment***

The Examiner has acknowledged the amended claims 1 – 3, 12, 15, 16, 18, 19, 20, and 22.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1 - 24 have been considered but are moot in view of the new ground(s) of rejection.

One argument Applicant has made in the Remarks applies to the instant Office Action. Applicant states that Axberg fails to teach the step of issuing an exclusive control command by said manager server to said external storage system (page 15). The Examiner respectfully disagrees with the Applicant's assertion because Axberg does disclose such limitation (See lines 29-40, column 14. Commands ("control commands") maybe issued by the central manager ("management server:"). See from line 43, column 16 to line 10, column 8 for the list of commands. Local agents serve as the intermediary for executing the commands against the attached storage. See Fig. 10 and lines 11-20, column 19). Applicants are reminded that The Examiner is not or will not read any limitations from the specification into the claims when being examined.

In fact, it appears that Applicants are interpreting the claims very narrow without considering the broad teaching of the reference used in the rejection.

Applicants are reminded that the examiner is entitled to the broadest reasonable interpretation of the claims. The Applicants always have the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater 162 USPQ 541, 550-51 (CCPA 1969).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Axberg et al (US 6,253,240; hereinafter Axberg) in view of Yagisawa et al (US 5,996,046; hereinafter Yagisawa).

With respect to claims 1 and 5, Axberg shows a method of a data storage system in which multiple external storage systems that store information are connected to a first network and each of them is arranged separately, comprising [See Fig. 1 for multiple external storage systems. Each is arranged separately and connected to a network. The disk storage attached to the host]: generating an interrupt by an external storage system to a management server [The devices communicate with the central manager through local agents, which collect information about the attached disks. See from lines 10-26, column 3. Information from the disks is communicated to the central manager (by the local agent) relayed by the local agent. Again, see lines 10-26, column 3. The communication generates a communication interrupt, by default; it is inherent within network interfaces. Axberg also mentions "interrupt" as being generated by a network daemon, which is part of the agent]; issuing an exclusive control command by said management server to said external storage system [See lines 29-40, column 14. Commands ("control commands") maybe issued by the central manager ("management server:"). See from line 43, column 16 to line 10, column 8 for the list of commands. Local agents serve as the intermediary for executing the commands against the attached storage. See Fig. 10 and lines 11-20, column 19]; receiving by said management server, configuration information from said external storage systems in

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response to said command [See lines 29-40, column 14 and see lines 43-65, column 19. RAID ("storage") conveys the desired information ("configuration information") to the central manager, through the local agent on host to which the RAID is connected. See lines 47-51, column 19]; and storing in a database at said management server said configuration information that said management server received [See lines 45-50 of column 13, which indicates that collected information can be stored in a file ("database")]. Claim 5 adds the limitation of logging on to a management server to request access permission. [See lines 26-29, column 7, and lines 19-23, column, for the operating systems on which the management server is installed. In either case, the operating systems require logging on to the management server for gaining access. In other words, logging on feature is inherent in the servers that are mentioned in the cited paragraphs.]

Axberg shows substantially all the limitations, but fails to specifically show the step of generating an interrupt by an external storage system to a management server.

However, Yogisawa shows, in an analogous art, the idea of generating an interrupt by an external storage system to a management (col. 9, lines 12 – 26; col. 20, lines 45 - 51).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Axberg by generating an interrupt by an external storage system to a management server as evidenced by Yogisawa for the purpose of securing the reliability for a disk fault, thereby enhancing performance of a data storage system.

Claim 2 includes only a subset of limitations of claim 1. The reasons for the rejection of claim 1 apply to claim 2.

With respect to claim 3, Axberg and Yogisawa show all the limitations in claim 2, and Axberg further shows that said management server acquires configuration information of said all external storage systems in point of time series and stores it in the database managed by said management server using said exclusive control command [See lines 28-30, column 14. The central manager obtains information ("in point of time series," which is understood as anytime). See also lines 22-29, column 14. The passage indicates that the local agent provides information to the manager in response to a command from the manager periodically].

With respect to claim 4, Axberg and Yogisawa show all the limitations in claim 3, and Axberg further shows wherein a time series acquisition is made with a simultaneous and periodic inquiry into multiple external storage systems as moments. See the preceding discussion of claim 3. The command is issued periodically. See lines 28-30, column 14.

With respect to claim 6, Axberg and Yogisawa show all the limitations in claim 5, and Axberg further shows, wherein said management server acquires configuration information of said all external storage systems and stores it in the database managed by said management server using said exclusive control command. [See lines 29-40, column 14 and see lines 43-65, column 19. RAID conveys the desired information ("configuration information") to the central manager ("management server"), through the local agents on the host to which the RAID is connected. See lines 47-51, column 19]

[See lines 45-50 of column 13, which indicates that collected information can be stored in a file ("database")].

With respect to claim 7, Axberg and Yogisawa show all the limitations in claim 5, and Axberg further shows the steps of activating application programs of said multiple computers based on said exclusive control command issued by said management server [See lines 31-42, column 19. Local library ("application programs") is activated upon receiving calls from the central manager]; and receiving by said management server, host logical configuration information from said multiple computers [See lines 41-65, column 19. Information is provided and sent to (and thus received by) the central manager ("management server"). See lines 62-67, column 16 for the information about the host. See from line 1 column 15 to line 42, column 16 for the commands that apply to the hosts ("multiple computers."].

With respect to claim 8, Axberg shows the method according to claim 7, wherein said configuration information stored in said database and said host logical configuration information are associated and stored in a database. Configuration information is sent to the central server and, in one embodiment, is stored in a file. See lines 46-56, column 13. Note that the pieces of configuration information from execution commands GetAttr and ListResources are "associated" in the sense that, information from GetAttr is for each resource in the list returned by ListResources.

Claim 12 incorporates the limitations of claims 1 and 8. The reasons for the rejection of claims 1 and 8 apply to claim 12.



Claim 13 substantively incorporates one of the limitations of claim 1, and therefore, part of the reasons for the rejection of claim 1 applies to claim 13.

Claim 14 substantively reflects the limitations of claim 3, and therefore, the reasons for the rejection of claim 3 apply to claim 14.

***Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 18, and 20 – 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Axberg et al (US 6,253,240; hereinafter Axberg).

With respect to claim 18, Axberg shows a data storage system in which multiple external storage systems that store information are connected to a network and each of them is arranged separately [See the above discussion of claim 1 ], each external storage system has an external connection interface that sends event information in order to define or refer to its own configuration [Each of the storage has interface (or some means) to send information], show performance and data or post a fault, comprising: a management server part, which is connected to said external storage systems [See the above discussion of claim 1 for the central manager]; and a

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configuration information database that accumulates a time for each event and the corresponding event information of said multiple external storage systems via said external connection interface [col. 19, lines 31 – 42; col. 21, lines 39 – 60; See the above discussion of a file ("database") to store the configuration information at the central manager].

With respect to claim 20, Axberg shows a data storage system in which multiple computers those use information and multiple external storage systems those store information are connected to a network respectively and each of them is arranged separately [See the above discussion of claims 1 and 5] each computer installs an application for acquiring its own host logical configuration information [In the Axberg's system, each host computer has API's that support the commands from the central manager, as explained in the above discussion. It is inherent in the computer system that the computer installed the API's], each external storage system has an external connection interface that sends event information in order to define or refer to its own configuration [Each storage has ability to send ("define") configuration information back to local agent, as discussed above with respect to claim 1 ], to show performance and data, or to post a fault, comprising: a management server part as its part [The central manager of Axberg is the "management server". See the above discussion of claim 1]; and a configuration information database [See the above discussion of claim 1 ]; wherein the management server part is connected to said external storage systems [See Fig. 1] and accumulates a time for each event and the corresponding event information of said multiple external storage systems via said external connection

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interface into said configuration information database [col. 19, lines 31 – 42; col. 21, lines 39 – 60; The central manager periodically polls the local agent (as discussed with reference with one of the claims above) and obtains ("accumulates") information ("event information") about the storage systems ("multiple external storage"). In an embodiment, these are saved into a file ("database")], and wherein the management server part is connected to said computers [In Fig. 1, note how the central manager 110 is connected to a host 111 ("said computers")] and accumulates host logical configuration information of said multiple computers via said network [As discussed with respect to claim 5, the multiple computers give configuration information to the central manager. Collected information is stored in a file], in point of time series [This limitation is understood as a point in time, which means just an instance].

With respect to claim 21, Axberg shows the data storage system according to claim 20, wherein said management server part makes said event information of said multiple external storage systems and said host logical configuration information correspond to each other when they are accumulated in said configuration information database in point of time series. Central manager issues commands LL \_ Claim 14 substantively reflects the limitations of claim 3, and therefore, the reasons for the rejection of claim 3 apply to claim 14.

GetAttr (which queries the storage devices) and LL\_ListResources (which queries the host). The commands correspond to each other, in the sense that, information from GetAttr corresponds to each resource in the list returned by ListResources.

With respect to claim 22, Axberg shows the data storage system according to claim 21, wherein said management server comprises a function of retrieving said configuration information database by specifying a file and time information those said computers handle. See the discussion above for claim 1. The configuration database is a file; it can be reloaded. The central manager therefore must have inherent capability to specify a file (to which it stored original configuration data). It can also specify "time information" (i.e., selecting Event Monitor under Tools menu. An event is time information. See lines 47-50 in column 23 for time field in an error event record) in order to retrieve information about the events for a given management set. See lines 51-57, column 29.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Axberg.

With regard to claim 23, Axberg does show events ("modification history") the data storage system according to claim 21, wherein said management server comprises a function of displaying a modification history of a system configuration or a history of a system performance. Error events, when requested by the central manager and eventually displayed at UI, are a "history of system performance."

Claim 16 is rejected under 35 U. S. C. 103(a) as being unpatentable over Axberg in view of "VERITAS Volume Manager 3.1 Migration Guide" (VERITAS hereinafter).

With respect to claim 16, Axberg shows a control method of a data storage system in which multiple computers that use information and multiple external storage systems those store information are connected to a network respectively, each of them is arranged separately [See the above discussions of claims 1 and 5], and the data

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storage system has a management server connected via a first network [See above], comprising: inquiring by a management server, to a computer of the size of a file that an application software of said computer uses [Axberg shows inquiring about a volume but does not show inquiring about a file or about using a file size as to search. VERITAS however, shows searching a file, together with its size as metadata.

It would have been obvious to one of ordinary skill in the art at the time of the invention to extend the storage system to handle files as well as the volumes, because it allows administrator to deal with high level, abstract file objects without having to keep track of information on which file are mounted on which volume groups. As shown by VERITAS, the details of handling file involve its metadata, including size.

receiving a response in point of time series [That an inquiry should be returned with a response is a given]; and retrieving by said management server, association between a logical disk unit and said file that was stored in the unit from contents of a configuration information database, and indicating a relationship between the capacity of said logical disk unit and the size of said file in point of time series [Axberg shows a retrieval of information. VERITAS shows the specific information cited in the limitation ("association between a logical disk unit and said file"). See Fig. 4-3, in page \$7 for allocated file size and the see Fig. 4-12 for the size of logical volume ('volume group')].

It would have been obvious to one of ordinary skill in the art at the time of the invention for Axberg to use additional parameters for examining the storage system as VERITAS shows (such as an association between a logical disk and file), because in

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order to allocate additional disk space for a file system, it helps to know how much disk space already has been allocated from a logical disk and to which file system.

***Allowable Subject Matter***

Claims 9 – 11, 17, 19, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 15 is allowed.

**Contact Information**

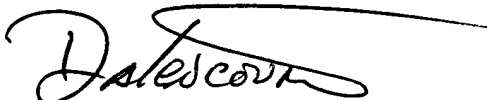
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yves Dalencourt whose telephone number is (571) 272-3998. The examiner can normally be reached on M-TH 7:30AM - 6: 00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 5, 2007

  
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